



Via email: : futuresystemoperator@beis.gov.uk and SOreview@ofgem.gov.uk

Email: Tom.Steward@RWE.com

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Ref: Energy Future System Operator Consultation

Dear Future System Operator Team,

RWE Renewables is one of the world's leading renewable energy companies. With around 3,500 employees, the company has onshore and offshore wind farms, photovoltaic plants and battery storage facilities with a combined capacity of approximately 9 gigawatts. RWE Renewables is driving the expansion of renewable energy in more than 20 countries on five continents. From 2020 until 2022, RWE Renewables targets to invest €5 billion net in renewable energy and to grow its renewables portfolio to 13 gigawatts of net capacity. Beyond this, the company plans to further grow in wind and solar power. The focus is on the Americas, the core markets in Europe and the Asia-Pacific region.

Thank you for the opportunity to respond to the above consultation. Below we set out some key points, and detailed responses to the questions follow.

Key Points:

- We strongly support the creation of an independent system operator.
- The delivery of net zero requires fundamental change in the operation and development of the energy system, and there is a clear need for a strategic approach to deliver both the 2030 40GW offshore wind target, and net-zero by 2050.
- The Future System Operator (FSO), taking a strategic, anticipatory approach to network development is an essential part of the necessary governance change, however is not on its own, sufficient. It is necessary too that OFGEM's remit be reformed to require the delivery of an economically efficient transition to net zero. This objective should be part of, and of equal importance to, protection of current and future consumers.

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Registered Office: Greenwood House · Westwood Way · Westwood Business Park · Coventry · United Kingdom · CV4 8TT



Questions

1. Do you agree that net zero will create the need for new technical roles in the electricity and gas systems, and require a new approach to energy system governance?

Yes – the delivery of net zero requires fundamental change in the operation and development of the energy system, and although the current institutional framework has facilitated much change in the energy system, there is now a clear need for a more strategic approach to deliver both the 2030 40GW offshore wind target, and net-zero by 2050.

The Future System Operator (FSO), taking a strategic, anticipatory approach to network development is an essential part of the necessary governance change, however is not on its own, sufficient. It is necessary too that OFGEM's remit be reformed to require the delivery of an economically efficient transition to net zero. This objective should be part of, and of equal importance to, protection of current and future consumers.

OFGEM's reformed remit would contribute to reforms in areas of regulation that are critical to delivery of net zero – the need to permit network companies to carry out anticipatory investment to ensure timely connections of new generation assets is one such example.

2. Do you agree that the establishment of a Future System Operator is needed to fulfil the kinds of technical roles needed to drive net zero?

Yes – a strategic, technology-neutral system operator with a deep understanding of “build” and “non-build” solutions to network capacity development will be essential for delivery of net-zero. This will require close collaboration with external stakeholders, and new technical and commercial alternatives to traditional network-build to be developed. The FSO must also be forward looking, with planning horizons that extend beyond the planning timelines of new projects being developed which will require network connections.

The FSO must take a technology-neutral approach, focussing instead on solutions that will deliver best in the long-term interests of the energy system, from the perspectives of cost, energy security, and decarbonisation. This technology neutrality should not only relate to different forms of generation technology, but also energy vectors – given the proposal that the FSO will be born out of the current ESO, it is important to avoid existing expertise leading to unduly favouring strategic solutions based on electrons (electricity) over molecules (hydrogen), or vice-versa.

The skills necessary for operating the system of 2050 are likely to be natural extensions of those of today, with a greater level of reliance on distributed sources of generation and demand side management.

3. Do you agree that a Future System Operator should have roles in both the electricity and gas systems?

Yes – the transition to net zero will require a more holistic, joined up approach – crossing energy vectors and end uses. This will necessitate involvement in strategic planning of both the electricity and gas networks.

The case for splitting the Gas System Operator and Transmission Owner is less compelling or urgent than is the case for electricity. Therefore we would support the Gas system



operator remaining within National Grid for a limited period if this would help to speed up the creation of the FSO for electricity.

4. Do you agree that a Future System Operator should be entirely separate from National Grid plc?

Yes. The FSO should be entirely separate from National Grid, whilst also being sufficiently arm's-length from government to avoid the risk of actual, or perceived, political involvement in the day-to-day operation of the energy system.

5. What issues are there with existing institutional arrangements in the UK energy system in relation to system-wide decision-making and planning?

There are a number of areas of industry governance which are in need of reform in order to ensure a cost-efficient transition to net zero:

- **Cross-vector system planning** - Currently the development of the gas and electricity networks are considered completely separately. As hydrogen becomes a larger part of Britain's energy mix, integrated planning of network development will become increasingly important – for ensuring optimum location of hydrogen production, and end-use facilities.
- **Anticipatory investment** - Anticipatory network investment is essential if the 40GW offshore wind by 2030, and longer term net-zero targets, are to be met where connections are increasingly coordinated/integrated. Network companies must be able to invest with confidence in areas of the network where there are significant commercially viable renewable resources. This is particularly true for areas of the country adjacent to offshore leasing zones where current connection timetables imply that the 2030 target may not be met, but also areas such as mid-Wales where the potential for onshore deployment is limited by grid.
- **OFGEM's Remit** - As set out in question 1, OFGEM's remit is in need of reform to include an objective relating to delivery of a cost-efficient transition to net-zero. This should be included as part of OFGEM's primary duty. Given the legal requirement to deliver net zero, it is not possible for OFGEM to protect the interests of current and future consumers without also ensuring delivery of net zero, therefore it would not be appropriate for these two responsibilities to be separated. The Strategy and Policy Statement (SPS) is a useful first step in giving OFGEM guidance, however it is not sufficient in of itself, as it carries no legal force. To ensure investor confidence, a legal remit change is necessary.
- **Code Reform** - Greater detail on our views on necessary changes to the code governance process are contained in our recent response to the "Consultation on the Design and Delivery of the Energy Code Reform". However as a minimum, the governance of all codes should be reviewed to ensure they are consistent with delivery of net zero, and so that OFGEM is able to make informed decisions in approving, rejecting, or sending back code modifications in relation to its



requirements in the forthcoming SPS, informed by in-depth discussion at the workgroup and panel stages of code modification development.

6. What examples/case studies are you aware of where net zero delivery in one part of the energy system did not adequately account for cross-system impacts or costs?

A more joined-up approach to decision-making and analysis is essential to delivery of net-zero. One such example is in OFGEM's Targeted Charging Review. This was designed to ensure efficient investment in generation at different voltage levels, and to avoid over-incentivisation of behind-the meter generation or flexibility. However, there was limited consideration given to how charging reforms would influence take-up of heat-pumps and electric vehicles. Given these are two technologies that are considered by both BEIS and the CCC as instrumental to delivery of a net-zero economy, a lack of in-depth modelling of these impacts appears to be a significant oversight.

7. Where should government focus in our efforts to improve systems thinking and coordination across the energy system?

Greater consideration of feedback loops in costs and revenues could drive a more efficient approach to delivery of net-zero. For example, where reductions in OFTO-related risks will lead to reduced CfD bids for offshore generators. Only through a joined-up approach to cost modelling, encompassing all costs faced by generators and consumers, will an economically-efficient transition to net-zero be delivered.

8. Do you agree that the FSO should undertake all the existing roles and functions of NGESO? If not, please explain why.

It is entirely appropriate that the majority of functions of the ESO are transferred to the FSO, however we have some concerns around the code administrator/manager function. As set out above, more detail can be found in our recent response to the "Consultation on the Design and Delivery of the Energy Code Reform", however we have concerns about possible conflicts of interest where a system operator has code manager responsibilities. Strict boundaries separating the FSO's operational activities from its code management activities – to avoid actual or perceived conflicts – for example where the code manager gives the operational function access to information that would not normally be so readily available to another member of a workgroup, or where a code manager might tend to support code modifications that alter obligations for the FSO itself.

If the decision is taken that code administration/management should be part of the FSO's remit, it would be important to examine if the level of resourcing currently allocated to the function by the ESO is appropriate for timely delivery of necessary changes to meet net-zero. RWE also highlighted concerns about this in its response to Ofgem's recent consultation on the Early Opportunities and Pathways to 2030 workstreams of the Offshore Transmission Network Review.

9. Do you agree there is a case for the FSO to undertake the long-term strategic functions outlined in Option 1? Please elaborate and provide any views on the functions we have outlined in Option 1.



Broadly we have no objections to the proposals set out in Option 1, that the FSO takes both day-to-day operation, and strategic planning of the electricity network, but only the strategic elements of the gas network planning, leaving day-to-day operation with the gas TSO. We support the proposal to keep this position in review however as the energy transition leads to reduced consumption of methane and as the role of hydrogen and CCUS in the energy system develop, National transmission systems investment and decommissioning decisions will soon need to be taken, and hence we believe it would be better for these decisions to be made by an FSO rather than National Grid.

10. Do you agree that there is not currently a case for the FSO to undertake all GSO roles and functions, including real-time gas system operation, as outlined in Option 2? If you do not agree, please explain why.

Yes - see response to question 9.

11. Do you have views on the proposal for an advisory role? What organisations do you consider would benefit from the provision of advice by the FSO? Who should bear the costs of providing that advice?

The advisory role will form a crucial function of the FSO. Strategic insight should be provided to government - not limited to BEIS, but including DfT, MHCLG, DEFRA, as well as to OFGEM. All of these departments have briefs which are central to the delivery of a net-zero energy system in an increasingly climate-change affected world.

It is not clear that the FSO is the right body to be offering advice to Local Authorities. The giving of strategic advice to policymakers will prove crucial to delivery of net zero. A number of local authorities have declared a climate emergency, or net-zero objectives. There is a risk that local authorities could look to the FSO to help them understand how to deliver on these commitments, monopolising the FSO's advice-giving resources, that could be better spent engaging directly with government, OFGEM and the CCC. This is not to say Local Authorities should not be supported to meet their commitments, but there may be other organisations better-placed to offer this support. When there may be other organisations better placed to provide this support. Some interaction between the FSO and Local Authorities is potentially beneficial such as FSO's plans interact with local heating or transport planning, collaboration between local authorities and the FSO could be very advantageous.

It would be logical for the cost of the FSO to be borne by end-consumers or taxpayers. The delivery of net-zero is a social good, and therefore an FSO charge is little more than a cost-recovery exercise. As noted in the second BSUoS taskforce, it is most efficient to place such charges directly on the end consumer, rather than on generators who then must pass them on through wholesale, CM or CfD costs.

12. Do you have any views on the other areas where we are considering new and enhanced roles and functions for the FSO (outlined in section 3.2)?

- **Advisory role** - As set out in question 11, the advisory role will prove critical in delivery of net-zero.
- **Dispute resolution** - there is no clear justification for the FSO to take on dispute resolution powers. There will remain a necessity for a pathway for dispute resolution



for issues between industry participants and the FSO, therefore operating two separate pathways appears inefficient. Dispute resolution should be the responsibility of the regulator.

- **System planning and network development** – This will be critical to the delivery of net-zero, a strategic and forward-looking approach to system planning and network development will be essential. The FSO must be sufficiently resourced to do so, and must have the power to recommend carrying out anticipatory investment in pursuit of net-zero.
- **Supporting competition in transmission eg. through tenders** – In principle we have no objection to the FSO carrying out this function, however the nature and effectiveness of the FSO in this role is likely to be intimately linked with decisions in other workstreams - such as if network competition is to be delivered through early or late-stage competition. It is essential that these two areas of policy are developed in parallel.
- **Greater role in running of the CM and future market design** – The FSO will be well-placed to run the CM and contribute to the development of the imbalance and ancillary markets.
- **Interaction with DSOs** – There is a clear incongruence with fostering separation of system operation from asset ownership at the transmission level, whilst seeking a greater operational role for distribution network owners. We would welcome clarity around why different frameworks are appropriate at the different voltage levels, and why the FSO should not have responsibility for operation of all voltages of the electricity network – which, prima facie, appears to offer operational and strategic benefits to system development.
- **Coordination of heat decarbonisation** – Given the challenges of heat decarbonisation, and its importance for delivery of net-zero, we have no objection to this proposal, providing the FSO is able to coordinate with actors seeking to deliver local heat plans, such as local authorities.
- **Data** – The capture, compilation, sharing, and monitoring of high quality data is an essential requirement for the cost-efficient delivery of net-zero. Centralising this within the FSO appears logical.
- **Enhanced functions related to:**
 - **Future system operability** – This appears consistent with the rest of the FSO's remit.
 - **Energy code development** – we have some concerns relating to this – see response to question 8.



- **Engineering standards** – This depends on which engineering standards are being considered in scope. There is an argument for standards that are likely to affect decarbonisation and are closely related to energy system Codes such as the SQSS as this may increase speed of the transition. The governance of Gas Quality Specifications which are currently legislated in the HSE’s GS(M)R Regulations will be critical to managing the decarbonisation of the gas transmission and distribution systems. It will be essential that an entity that is responsible for security of supply and delivery of Net Zero has governance of these standards going forward.
- **Hydrogen and CCUS** – it appears logical to delay decisions about the exact role of the FSO in Hydrogen and CCUS until the roles of these technologies in the future of the energy system are more developed. We would support BEIS and OFGEM placing clear timelines for such considerations.

This multitude of new and developed functions will require significant resources (including, but not limited to, adequate funding). The suggestion that “...the FSO’s enduring costs are likely to be roughly comparable to those related activities undertaken by the current system operators” does not appear credible. If the FSO is to deliver each of these myriad responsibilities, and most crucially provide strategic insight and coordination in the delivery of net-zero, then expansion of resources will be necessary. Unless resources match the scale of the challenge, and its importance, then the FSO risks being set up to fail.

13.What are your views on our proposed characteristics and attributes of a future system operator and how the models presented would deliver against them? Are there other characteristics or attributes that we have not yet considered?

- **Transparency** - We believe that transparency is a crucial attribute of the future system operator that was not set out in the proposals – it is essential that the rationale for decisions and recommendations are clearly visible to market participants. This will facilitate the FSO developing a strong reputation for credibility and independence. An important part of this would be for the FSO to be subject to the same transparency rules as other public bodies such as being subject to Freedom of Information (FOI) requests.
- **Institutional Memory** - Many institutions in the energy sector rely on individuals’ memories of historic policy developments. This means when individuals leave the organisation, that understanding and expertise is lost. The development of a new institution represents the opportunity to embed new tools and processes to foster institutional memory, and minimise the extent to which knowledge is lost with staff turnover.

14.Are we considering the right organisation models for the FSO? And why?



We believe that a publicly-owned organisation, independent from government, is the appropriate ownership model for the FSO. It is essential that the FSO acts in the best interests of the energy sector and decarbonisation, whereas any private institution has an obligation to its shareholders. Even the most carefully-developed price control framework will inevitably fail to perfectly capture the changing needs of the energy system and translate them into an appropriate incentives framework. Even if this were not the case, there is a risk that the FSO having commercial motivations could undermine perceptions of the independence of advice given to government, OFGEM and others.

15.Are we considering the right elements for the FSO’s regulatory and accountability frameworks? And why?

The appropriate accountability framework is dependent upon the ownership structure of the FSO. We support politically independent public ownership of the FSO. It is not clear why there might be a need for specific licence for OFGEM to enforce with an accompanying incentive structure, as opposed to simply putting in place a clear operating remit (akin to that of OFGEM itself). Creating the FSO as a public institution but then putting in place a governance framework to mimic that as if it were privately-owned risks missing many of the opportunities provided by public ownership.

If the FSO is to move into public ownership, it is essential that it has adequate resources to fulfil its myriad of functions (see question 12). This includes being able to offer market-rate salaries to attract and retain some of the best talent in the industry.

We support the proposal for specific objectives akin to OFGEM’s and would suggest that “taking a whole system perspective to ensure progress toward net zero” should be of equal importance to any objective relating to protection of consumers, as the latter cannot be done without the latter – given the legal commitment to net-zero.

Accountability should be distinct from the route of appeal for decision-making however, which would be most appropriate through the CMA.

16.Do you have views on the level of shareholding or control involving other ‘energy interests’ and the FSO at which a conflict of interest would become a concern?

As set out in question 14 – the FSO should have no other shareholding or control involving other energy interests. This is essential in order to maintain credibility and true independence of advice.

17.Are we considering the right implications of our proposals for Elexon and Xoserve?

We concur with the assessment in the consultation that the impacts on Elexon, as wholly owned by National Grid ESO, will need considering in order to preserve its operational independence. Whilst we agree it may be appropriate for National Grid to continue to manage gas system operation in the short term, we believe that ultimately system operation and code management need to be sufficiently distant from another to ensure independence, as outlined above. We also believe that it is important that Code Managers have responsibility for Central Systems Delivery because the systems design and development timeline are often fundamental to determining the design of code changes themselves as well as the speed of implementation.



18. What is your view on the preferred implementation approach? Please explain why.

We understand the motivation for a phased approach to implementation, however suggest there may be value in considering if the new functions of the FSO, such as the advice-giving, could not be developed in parallel with the separation of the ESO into the FSO. The current proposals seem to amount to migrating the foundations of the FSO out of National Grid Group and then building upon them. However we would question if where functions that are not currently carried out by the ESO need necessarily wait to begin to be developed, and if this could create a swifter move to the final operating model.

19. Based on the areas where we are considering new and enhanced roles and functions for the FSO, which of these should be prioritised for development? Please explain why.

We believe that the strategic network planning and advice functions are most critical to delivery of Net-Zero, however would argue that the FSO must be adequately resourced and funded to develop all areas in parallel. Each of the areas of enhanced or new function have been suggested to be essential for the cost efficient delivery of net zero – therefore it would be inappropriate for any of these not to be progressed at pace.

20. What do you believe are the risks to implementation? How can these be mitigated?

The greatest risk to this proposal is delay of other workstreams which are instrumental to delivery of the 40GW offshore wind target, or net zero – these must not be delayed “waiting for the FSO”, but continue to progress as quickly as possible until the FSO is delivered. OFGEM and BEIS must work with the existing ESO and TOs to unlock anticipatory investment needed for delivery of both the 40GW offshore wind by 2030 target, and 2045/2050 net zero targets.

21. Do you have any comments on potential implications of implementation for you, your organisation, or other stakeholders?

See response to question 20.

22. What is your view on the position there are likely to be cost savings across the energy system from an increased “whole system” view, as described in paragraphs 47-52 of the IA? If so, is the potential magnitude of savings illustrated fairly in the IA? If not, why not?

We concur that there are likely to be cost savings from a more strategic, “whole system” approach to delivery of Net-Zero, and that these are likely to be significant. However, we have not carried out the modelling necessary to comment on the magnitude of these savings set out in the impact assessment.

23. What is your view on the conclusion that policy intervention is likely to increase the benefits of onshore electricity network competition, as described in



paragraphs 53-59 of the IA? If you agree, is the potential magnitude of savings illustrated fairly in the IA? If not, why not?

We agree that an argument can be made that an independent FSO may facilitate greater network competition on the basis of reduced perception of, or actual, conflicts of interests between the TSO and ESO. However the level of this saving is not something we are able to comment upon.

24.Do you think that the impact assessment has identified and considered the key costs and benefits of policy intervention? If not, can you provide details on other impacts that have not been considered?

The currently foreseeable key costs and benefits appear to have been considered by the IA, with the one exception of possible future benefits of strategic planning of CO₂ networks that may develop in future.

25.Do you think that the distribution of impacts is fairly represented, with impacted groups correctly identified? Outlined in table 5 of the IA.

The impacts appear to be largely appropriate – the one clear omission however is the societal benefit of the increased probability of the UK meeting net zero by 2050 stemming from a more strategic approach to network investment and policy development.

26.We invite respondents' views on whether the proposals for energy system governance reform may have a different impact on people who have a protected characteristic (age, disability, gender re-assignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex or sexual orientation), in different ways from people who don't have that characteristic.

We can foresee no differing impacts on people with differing protected characteristics.

I hope that you have found this response useful. If you have any questions, please do not hesitate to contact me.

Yours faithfully,

Dr. Tom Steward

Senior Regulatory Affairs Manager
RWE Renewables